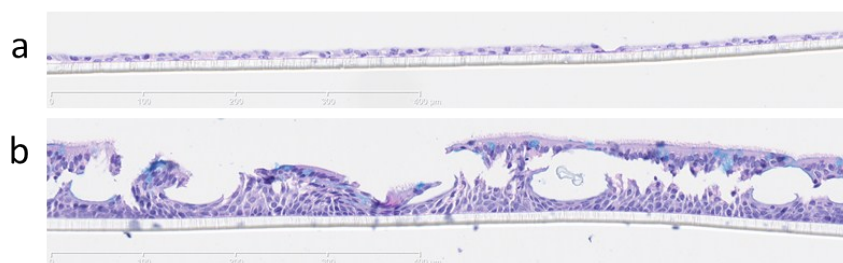


**Supplementary figure 1.** The volume of culture media affects the viability of HepaRG™ spheroids. ATP levels were measured in HepaRG™ spheroids maintained a) for 4 weeks in a standard spheroid microplate with either 200 or 50  $\mu$ L of medium and b) for 28 days in the chip with either 9 or 2.5 mL medium. Tissues maintained in a standard spheroid microplate for the 28 days with 200  $\mu$ L medium were used as the control condition (static condition). Data are mean  $\pm$  standard error of the mean for 3 independent measurements.



**Supplementary figure 2.** Representative histological sections of NHBE ALI tissues maintained for 7 days under dynamic condition in chips made from **a)** polytetrafluoroethylene or **b)** polypropylene. Sections were stained with hematoxylin, eosin, and Alcian blue. Magnification: 20x.